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SOUTHERLY RANGE EXTENSIONS IN ANTENNARIA.

Bayard Long.

The appearance in print of the New Gray in 1908 with its prepossessing treatment of *Antennaria* — descriptions with actual distinctions; dichotomous keys with ample contrasting characters; excellent drawings by Mr. Schuyler Mathews which illustrate and do not obscure — was largely responsible for the increased interest which some of us at Philadelphia began to take in this genus which we had previously considered as sacred to the specialist.

Our determination to collect as extensively as possible in this group during the following spring was made known to Professor Fernald and his interest solicited. He very generously agreed to examine and name all our prospective material. So with such encouragement for obtaining a knowledge of a genus so thoroughly neglected by us, we felt we were making a most auspicious onset upon *Antennaria*. We were not so over-sanguine as to hope for new species in the Middle Atlantic States but we knew that there were additions to be made to the knowledge of at least the local distribution of our species, if not to their general geographic range.

At that time there had been, apparently, no published records or notes on the Antennarias to be found in the Philadelphia region since Professor Porter's *Flora of Pennsylvania* in 1903 and Keller and Brown's *Flora of Philadelphia and Vicinity* in 1905. From these two sources it appeared that there were but three species, *Antennaria plantaginifolia*, *A. neglecta*, and *A. neodioica* commonly recognized to be generally distributed, and two others, *A. Parlinii*, noted from a single locality in the one book, and *A. fallax* recorded in the other volume,

also from but one station. Naturally our interest during local trips largely centered about these last two supposedly rare species, and it was not long before a little active collecting showed them to be frequent about Philadelphia or even locally common.

Professor Fernald had encouraged us with the opinion that *A. canadensis*, *A. occidentalis*, and *A. petaloidea* ought to be extended south into our upland counties, so a trip in the middle of May, 1909, with Mr. S. S. Van Pelt into the glaciated area of Northampton County, Pennsylvania, lying just south of the Blue, or Kittatinny, Mountains, held at least promise of some possibilities in *Antennaria*. In the Herbarium of the Academy of Natural Sciences we had seen a specimen of *A. canadensis* from the Catskills and so during this trip we had this species continually in mind. The hope of finding it was not realized here but a tall form with large heads and strikingly handsome white petaloid bracts (suggesting, in general, *A. fallax* with round-tipped leaves) collected at the foot of the Big Offset north of Bangor, and again between Johnsonville and Mount Bethel, proved to be *A. occidentalis* — a northern species heretofore known, in the eastern part of its range, only as far south as western Massachusetts and New York.

The work of Mr. Harold W. Pretz in Lehigh County, Pennsylvania, has given us additional information on the local distribution of *Antennaria* and has also added another northern species to our local flora. Through two seasons he has collected extensively and has generously allowed me the use of his material. To Mr. Pretz belongs the credit of making known in our region *Antennaria petaloidea* — a species not previously recorded south of New York State. His station is at Corning, in the red-shale district of the extreme southern part of Lehigh County, at the head of the Perkiomen Valley which supports so many interesting and often local species.[1] Two other collections of his give additional evidence of *A. occidentalis* at localities still farther south than the Bangor stations. The one, of handsome staminate plants with characteristic basal leaves, Professor Fernald

[1] Here occur two of our most southeasterly stations in Pennsylvania for *Luzula saltuensis*, as well as stations for *L. campestris* var. *multiflora* which finds the extreme limit of its range on the southeast near Philadelphia. Among species of characteristic occurrence may be mentioned *Juniperus communis*, *Oryzopsis racemosa*, *Polygonatum biflorum*, *Corylus rostrata*, *Acer spicatum*, *Lonicera dioica* — all types which come into the Philadelphia area from the north or northwest and which become rare and localized south or southeast of the Perkiomen Valley.

agrees probably represents this species. The colony was found in the vicinity of the Blue Mountains below Lehigh Gap Station. The other collection seems to me to be satisfactory *A. occidentalis* but Professor Fernald is inclined to feel that it approaches *A. fallax.* These plants are also from Corning, where Mr. Pretz tells me Antennarias abound in the greatest profusion. The country is here quite hilly with often abrupt rises of several hundred feet, the general elevation ranging from four hundred to over a thousand feet.

Our most successful Antennaria hunt, the one most full of surprises, was during a trip over Decoration Day in 1909 with Mr. E. B. Bartram into the mountains of the western part of Virginia near the Natural Bridge. The very first morning's explorations brought to light, almost within sight of the famous bridge, two of the most interesting additions to the flora of this region. While I was expending my enthusiasm on two beautifully distinct forms of *Polygala Senega* Mr. Bartram was the fortunate discoverer of the first colony of *Antennaria canadensis.* The plants were growing in large tangled mats on a moist, shaded, woodland bank. The leaves of the first colony examined seemed to be much longer, narrower and more pointed than in the common plant of the north but other plants were quite characteristic. Although so far south and occurring at only fifteen hundred feet elevation, the inflorescences were still mostly quite fresh and in good collecting condition. Only a few colonies of this species were found unfortunately, but this deficiency was amply made up by the abundance of *Antennaria Parlinii* everywhere in the rich, moist, rocky woods along Cedar Creek below the Bridge. Considerable variation on leaf-form was found in the many colonies collected. A form with oblong, rather obtuse leaves seemed to prevail. Both typical *Parlinii* and Prof. Greene's *arnoglossa* (with broad, white, petaloid bracts) occurred, but the former was noticeably the commoner. Unlike *A. canadensis,* plants with fresh inflorescences were very rare; the heads were commonly quite dried and withered.

These two species showed rather considerable range extensions. *A. Parlinii* does not appear to be credited further south than the District of Columbia region, about one hundred fifty miles to the north of the Natural Bridge, while the nearest station known to me for *A. canadensis* is that of Mr. C. S. Williamson at Platte Clove in the Catskills, approximately four hundred miles distant.[1] The most

[1] Bartonia, iii, 30 (1911).

southwesterly stations noted in Connecticut in the recent Catalogue [1] of the plants of that state are at about the same distance.

In lately re-examining our Antennarias in the general collection of the Academy two sheets of plants of particular interest were found. These were both collected by C. W. Short, a name inseparably associated in botany with that of Kentucky. His labels, like those of many of the botanists of somewhat earlier days, ofttimes bear rather meager information. This is unfortunately true in the present case, but Mr. Stewardson Brown assures me that when there is no intimate locality noted the specimen came from the Lexington region of Kentucky, this being his regular and consistent method of labelling. The one sheet bears two plants, in good condition, with this label in his own hand: —

" Gnaphalium plantagineum
On thin clayey lanes. Ky- fl: May
C. W. Short"

The other sheet bears three plants with a rather similar label. The interesting point is that only one of the plants is what is now known as *Antennaria plantaginifolia,* while the remainder are specimens of the large-leaved series in which both the basal leaves and those of the stolons are bright green and glabrous above from the first — quite definitely referable to *A. Parlinii.*[2]

Although the basis of this record may not be satisfactorily conclusive for Lexington, no doubt need be cast upon it for Kentucky. From the occurrence of *A. Parlinii* as far west as Iowa, taken into consideration with its abundance in the lower altitudes of the Blue Ridge at Natural Bridge, on the Potomac at Washington, and at low elevations in Pennsylvania, New Jersey, and Delaware, we would rather expect to find it occurring in country of no great elevation on the western side of the southern Alleghanies — country very like the Lexington region.

The extensions of range recorded in these notes seem to be very logical and natural; they are all southerly extensions along lines of

[1] Flowering Plants and Ferns of Connecticut. Ct. Geol. and Nat. Hist. Surv. Bull., xiv. 389 (1910).

[2] The second sheet mentioned shows staminate plants, the only specimens of this sex of *A. Parlinii* that have come under my notice, except some from above Washington along the Potomac, and a single large and luxuriant colony found by Mr. C. S. Williamson and myself at Harrington, Delaware. The extreme rarity of staminate plants would seem to be an actual, demonstrated fact and not one at all to be accounted for by an insufficiency of intensive field-work.

distribution well recognized. *Antennaria canadensis*, *A. occidentalis*, and *A. petaloidea* are species characteristic of the region north of Pennsylvania. Here they extend through New England and eastern Canada westward half way or more across the continent. A southerly advance of Canadian types such as these would be found along the general line of the Alleghanies, where they find climatic and temperature conditions similar to those of their northern home. These three plants will probably be found to belong to a group whose distribution may be typified by such species as *Glyceria Torreya*, *Tiarella cordiolia*, *Pyrus americana*, *Acer pennsylvanicum*, *A. spicatum*.

Although *Antennaria canadensis* has not yet, to the best of my knowledge, been collected between the Catskills and Natural Bridge, I feel that with future work in the Alleghanies its occurrence in Pennsylvania will be established. An interesting analogy would be shown should its distribution prove to be similar to that of *Thuja occidentalis*, which, despite the natural assumption that it extends from its northern home all along the Alleghanies to its southern limit in North Carolina, appears to be quite unknown in a native state in the wide mountain area of Pennsylvania.[1]

In our present knowledge of *A. petaloidea* and *A. occidentalis* extending down along the mountains only as far as Pennsylvania, their distribution is closely paralleled by such species as *Alnus incana*, *Lonicera canadensis*, *Lobelia Kalmii*.

Antennaria Parlinii is found to have a more southerly distribution than the other three species, occurs at lower altitudes, and extends well down into the northern coastal plain. It belongs to quite a different category — not a Canadian but an Alleghanian type. More properly it might be called an Alleghanian type encroaching on the Carolinian Zone. The impossibility of sharply separating the several floras in eastern America is a well-known fact.[2] There would seem to be sufficiently good evidence, however, for classing *A. Parlinii* as above. Its distribution in Maine — absent from the northern boreal portion but extending through the southern part (Alleghanian Zone) and in a broad arm well up the Penobscot Valley — is particularly interesting and indicative of the life-zone to which it belongs. Its occurrence through southerly New England in general, up along the

[1] See Porter, Flora of Pennsylvania, 3 (1903); Taylor, Torreya, ix. 206 (1909), xii. 103 (1912).

[2] See Fernald, Expedition to Newfoundland. RHODORA, xiii. 137, 139 (1911).

Connecticut and Hudson Valleys, as well as its absence in the higher mountains of Vermont and New Hampshire, points to the same conclusion. South of New England and New York it spreads, like a great many other species, into the northern extensions of the Carolinian. In all probability it will be shown to belong to a distribution-group which is typified by *Lycopodium complanatum* var. *flabelliforme*, *Populus grandidentata*, *Quercus coccinea*, *Q. bicolor*, *Pyrola americana*.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

REPORTS ON THE FLORA OF THE BOSTON DISTRICT,— XVII.

GRAMINEAE.

ECHINOCHLOA.

E. COLONA (L.) Link. Cotton waste from mill, Malden (*F. S. Collins*, Aug. 19, 1888, specimen in herb. Yale University).

E. CRUSGALLI (L.) Beauv. Wet shores and waste places, common throughout.

E. FRUMENTACEA (Roxb.) Link. Occasionally persistent from cultivation, and sometimes sporadic in waste land.

E. Walteri (Pursh) Nash. Swamps and salt marshes near the coast; Swampscott, Medford, Boston, Dorchester, Scituate.

SETARIA.

S. GLAUCA (L.) Beauv. Fields and waste places, common throughout.

S. ITALICA (L.) Beauv. Introduced in waste places from cultivation, frequent. A variable species, the variations of which are now being studied.

S. VERTICILLATA (L.) Beauv. Waste land; Newburyport, Salem, Charlestown, Cambridge, Boston, Dorchester.

S. VIRIDIS (L.) Beauv. Fields and waste places, common throughout.